

habital resemblance to *Gnaphalium dioicum*. There can, therefore, be no reasonable doubt that these were the specimens which furnished to Linnaeus the characteristics recorded in the uncompiled (i. e., first and last) portions of his description and which, therefore, must be regarded as the types of the species. These specimens are precisely *A. plantaginea* as interpreted by Mr. Fernald (the *A. decipiens* of Prof. Greene). Regarding the identity of the Plukenet plant, there is certainly nothing either in the description or figure to prove it different from the plant of Linnaeus. It was, from the figure, surely not the same as the plant of Clayton, which has much longer stolons and obovate leaves, rounded, not pointed, at the apex. However, in comparison with the plant which was actually examined by Linnaeus and which seems to have furnished him the information contained in the original (uncompiled) portions of his description, neither the plant of Clayton, which he did not see, nor the plant of Plukenet, which he probably did not see, can have any great weight in determining the identity of the species. The brief pre-Linnaean descriptions of these two plants are cited by Linnaeus after his own technical description and merely as supposed synonyms. The fact that at least one of these quoted expressions proves not to be synonymous, certainly cannot invalidate or alter the species as conceived and described by Linnaeus from the material at his command.

GRAY HERBARIUM.

MONARDA FISTULOSA AND ITS ALLIES.

M. L. FERNALD.

THE plants which have long been referred to *Monarda fistulosa* have recently been treated in very dissimilar ways by different authors. Dr. Gray in the Synoptical Flora regarded them all as phases of one polymorphous species, *M. fistulosa*, L., recognizing besides *M. fistulosa* three varieties, var. *rubra* (*M. purpurea*, Pursh), var. *media* (*M. media*, Willd.), and var. *mollis*, Benth. (*M. mollis*, L.). In the Illustrated Flora, however, Dr. Britton recognizes three species, *M. fistulosa*, L. (including *M. mollis*, L.), *M. media*, Willd. (*M. fistulosa*, var. *rubra*, Gray), and *M. scabra*, Beck (including *M. fistulosa*, var. *mollis*, Benth., in part). In view of these divergent

treatments, especially of the Linnaean *M. mollis*, Dr. Robinson while in London the past summer, examined the material of *M. fistulosa* and *M. mollis* in the Linnaean herbarium. There he found two sheets pinned together. One of these was marked "1" by Linnaeus and had later been marked in another hand (presumably of Sir James Edward Smith) "*fistulosa*." It was the custom of Linnaeus to number the sheets in his herbarium to agree with the numbers of the species in his *Species Plantarum*, and his "1" may thus be taken to indicate *M. fistulosa*, the first of the genus mentioned in *Species Plantarum*. This plant which represents the species apparently intended by Linnaeus as *M. fistulosa* has a hirsute stem and oblong-lanceolate finely and regularly serrated leaves which are hirsute on the midnerve and soft-pubescent on the surface beneath. In these characters the plant agrees well with a specimen collected by Dr. J. K. Small in middle Holston Valley, Virginia, July 20, 1892, and compared by Dr. Robinson with the Linnaean specimen.

The second sheet is of a plant cultivated at Upsal, and marked by Linnaeus "*H. U. fistulosa*." In the same hand, however, is the word "mollissima." This plant has canescent appressed (not hirsute) pubescence and it agrees with a Maine specimen collected by Mr. J. C. Parlin and compared by Dr. Robinson with the Linnaean plant. Considering the phrase in the original characterization: "Simillima *M. fistulosae*, at caule duplo majore, minime piloso ut in illa," and the "mollissima" written by Linnaeus upon the sheet, we are justified in considering the second specimen the type of *M. mollis*.

The confusion surrounding the name *Monarda mollis* began with Willdenow whose plant, at least as distributed from the Paris Garden in 1814, has the spreading pubescence of the Linnaean *M. fistulosa*. Bentham, too, applied the name *mollis* to plants different from the Linnaean species. His *M. fistulosa*, var. *mollis* was based upon *M. mollis*, L. and *M. menthaefolia*, Graham, two plants of rather different habit; while a sheet of specimens in the Gray Herbarium, sent out by Bentham to illustrate the *Genera and Species of Labiatae*, contains branches of both *M. mollis* and *M. fistulosa* of Linnaeus. Thus it is not surprising that the name *Monarda mollis* should have been of doubtful significance in our flora. Dr. Gray in his study of the group for the *Synoptical Flora*, seems to have interpreted the original plants correctly, but the minutely canescent *M. mollis* of Linnaeus is so constant in the character of its pubescence that its recognition as

a species distinct from *M. fistulosa* is probably justified. *M. menthaefolia*, Graham, a simple-stemmed plant of the Rocky mountains, generally united by authors with *M. mollis*, is habitally so well marked as to deserve treatment as a variety, although it lacks any other constant character to separate it specifically from that plant.

Monarda fistulosa and *M. media*, on the other hand, do not present any constant character by which they can be clearly separated. *M. fistulosa* in its typical form has lilac or salmon-pink corollas, and the spreading pubescence is well developed on the branches, while *M. media* has deep purple or crimson flowers and the spreading pubescence is confined chiefly to the leaves and their petioles. Numerous intermediate forms occur, however, so that the two plants can be considered only extreme varieties of one species.

The plants of the *fistulosa* group may now be treated as follows:

* Pubescence, at least of the petioles and midnerves (beneath) of the leaves, hirsute or long-villous, spreading.

M. FISTULOSA, L. Branches usually hirsute or villous: corolla lilac or salmon-pink. — Sp. 22; Benth. Lab. 316; Gray, Syn. Fl. ii. 374; Britton & Brown, Ill. Fl. iii. 103, except as to syn. *M. mollis*, Willd. Enum. 32; Britton & Brown l. c. as to syn.; not L. — New Hampshire to Texas and the Rocky Mountains. Often cultivated, and only a roadside escape in New England.

Var. **RUBRA**, Gray. Branches usually not hirsute nor villous: corolla deep purple or crimson. — Gray, l. c. *M. media*, Willd. l. c.; Britton & Brown, l. c. *M. fistulosa*, var. *media*, Gray, l. c. — Maine to North Carolina, Tennessee and Ohio. Often cultivated and perhaps not indigenous in New England.

** Pubescence minute, appressed, the leaves canescent, especially beneath.

M. MOLLIS, L. Mostly tall and branching: throat of calyx very densely white-bearded: corolla lilac. — Amoen. Acad. iii. 399. *M. scabra*, Beck, Am. Jour. Sci. x. 260; Britton & Brown, l. c. *M. fistulosa*, var. *mollis*, Benth. l. c. 317, in part; Gray, l. c. (except as to syn. *M. menthaefolia*). *M. fistulosa*, Britton & Brown, l. c., as to syn. — Maine to the Saskatchewan, Oregon, and Texas.

Var. **menthaefolia**. Simple or rarely a little branching: calyx usually less bearded at the throat. — *M. menthaefolia*, Graham, Edinb. Phil. Journ. 1829, 347; Hook. Bot. Mag. lvii. t. 2958. *M. fistulosa*, var. *mollis*, Benth. l. c.; Gray, l. c.; in part. *M. stricta*, Wooton, Bull. Torr. Club, xxv. 263. — MANITOBA, Brandon, July 8, 1894 (*John Macoun*): MONTANA, Bitterwood Valley, July 27, 29, 1880 (*S. Watson*, no. 329): IDAHO, Kootenai, 1861 (*Lyall*); Lake Pend

d' Oreille, Aug. 1, 1892 (*Sandberg, MacDougal & Heller*, no. 817) : NEVADA, Reno (received from *Thomas Meehan*) : COLORADO, Piedra, July 12, 1899 (*C. F. Baker*, no. 572) : NEW MEXICO, without locality, 1847 (*Fendler*, no. 603) ; Santa Fé Cañon, alt. 2460 m., July 2, 1897 (*A. A. & E. G. Heller*, no. 3798) ; White Mountains, alt. 2160 m., Aug. 1, 1897 (*E. O. Wooton*, no. 267) ; Chama, Sept. 5, 1899 (*C. F. Baker*, no. 570) : ARIZONA, Willow Spring, alt. 2200 m., July, 1874 (*J. T. Rothrock*, no. 242), July 5, 6, 1890 (*Edw. Palmer*, no. 626) ; Fort Apache, June 21-30, 1890 (*Edw. Palmer*, no. 579) ; vicinity of Flagstaff, alt. 2160 m., July 8, 1898 (*D. T. MacDougal*, no. 258). — The original specimen from Drummond was probably from Norway House on the Saskatchewan and is approached by Bourgeau's plant from that region which, however, has the throat of the calyx more densely bearded than in the Rocky Mountain plants or as shown in the original plate of the Drummond plant.

GRAY HERBARIUM.

THE CORRECT DISPOSITION OF *SISYMBRIUM NIAGARENSE*. — In his monograph of the genus *Sisymbrium* Eugène Fournier described in 1865¹ a new species, *S. niagarense*, collected at Niagara and said to be nearly related to the common hedge-mustard, *S. officinale*. Indeed, Fournier ventured the suggestion that it might be the *S. officinale* of Pursh and of Elliott. Unable from the description to place the plant more accurately and equally unable to identify it with any particular form of *Sisymbrium* from central North America, Dr. Gray² early suggested that it probably was only a form of *S. officinale*. This view (properly guarded by a mark of interrogation) was repeated in the Synoptical Flora and by Dr. Watson in his Bibliographical Index, while in the Index Kewensis the identity of *Sisymbrium niagarense* and *S. officinale* is recorded without any qualification.

On visiting the Jardin des Plantes in Paris, last July, the writer was permitted, through the kindness of Prof. Bureau and the staff of the herbarium, to examine Fournier's type. This, however, proved to be *Brassica nigra*, Koch, the common black mustard. To make the identity doubly certain, the specimen was subsequently reexamined by the writer in company with M. Danguy of the Botanical

¹ Recherches anatomiques et taxonomiques sur la famille des Crucifères et sur le genre *Sisymbrium* en particulier; Paris, 4to., 1865.

² Am. Journ. Sci. ser. 2, xlii. 278.